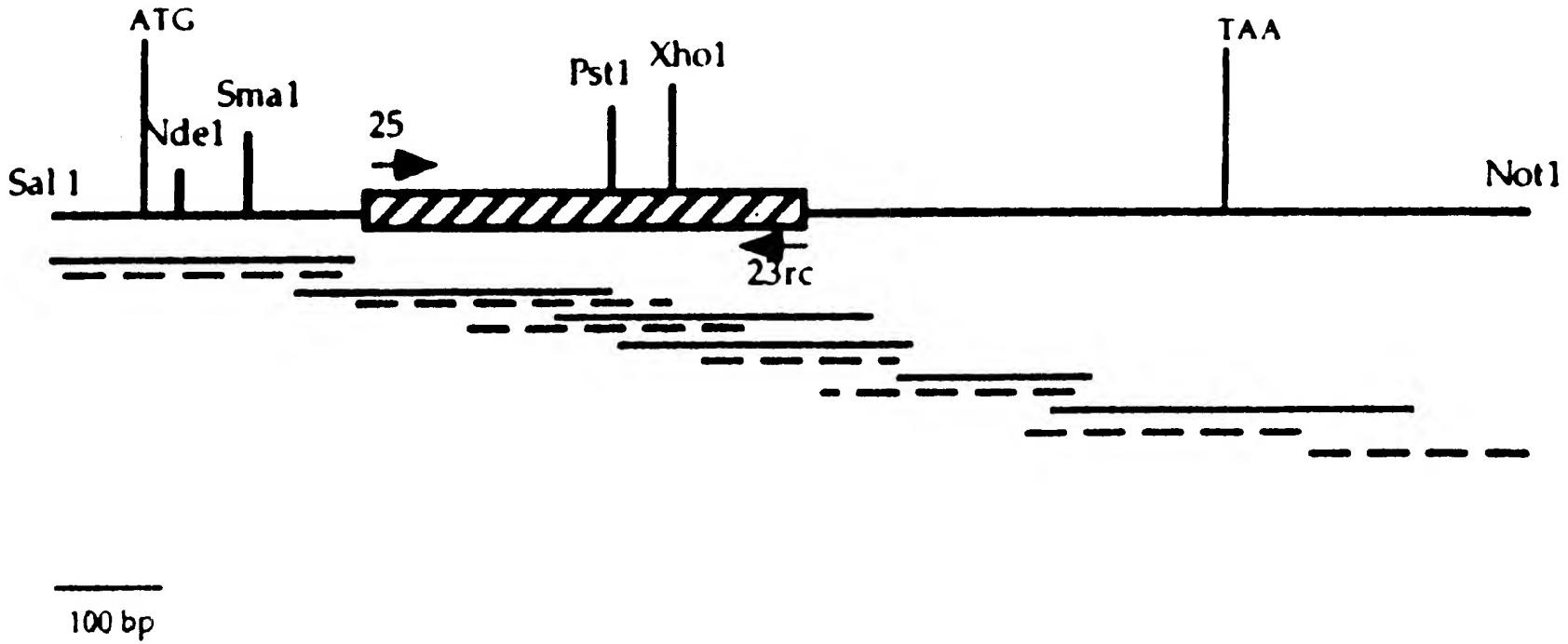

FIG. 1

FIG. 2

```
   1 gtcgacccacgcgtccgctcaggaccttgaaaggctcaggaagaacaaccctTGAgcacc
  61 tcagcactcagcATGTTCCTCGCTACGTTCAAGCTGTGTGCTGGAAGCTCCTATAGACAT
                 MetPheLeuAlaThrPheLysLeuCysAlaGlySerSerTyrArgHis   16

 121 ATGCGGAATATGAAAGGATTAAGGCACCAAGCTGTGCTGGCCATTGGCCAAGAGCTCAAC
     MetArgAsnMetLysGlyLeuArgHisGlnAlaValLeuAlaIleGlyGlnGluLeuAsn   36

 181 TGGAGAGCACTGGGGGATTCCAGTCCCGGGTGGATGGGTCAAGTTCGACGTCGGAGCTCT
     TrpArgAlaLeuGlyAspSerSerProGlyTrpMetGlyGlnValArgArgArgSerSer   56

 241 CTGCTTGGTTCTCAACTGGAAGCAACACTCTATAGTGACCAGGAGCTGTCCTACATCCAG
     LeuLeuGlySerGlnLeuGluAlaThrLeuTyrSerAspGlnGluLeuSerTyrIleGln   76

 301 CAGGGAGAGGTGGCTATGCAGAAGGCCTTGGGCATACTCAACAACCAGGAAGGCTGGAAG
     GlnGlyGluValAlaMetGlnLysAlaLeuGlyIleLeuAsnAsnGlnGluGlyTrpLys   96
                                      25
 361 AAGGAAAGCCAGCAGGAGAACGGGGACGAAGTGCTAAGTAAGATGGTGCCAGATGTGGGC
     LysGluSerGlnGlnGluAsnGlyAspGluValLeuSerLysMetValProAspValGly  116

 421 AAGGTGTTTCGCTTGGAGGTGGTGGTAGACCAGCCCATGGACAGACTCTATGAAGAACTT
     LysValPheArgLeuGluValValValAspGlnProMetAspArgLeuTyrGluGluLeu  136

 481 GTGGACCGCATGGAGGCCATGGGAGAGTGGAACCCAAATGTCAAGGAGATCAAGGTCCTG
     ValAspArgMetGluAlaMetGlyGluTrpAsnProAsnValLysGluIleLysValLeu  156

 541 CAGAGGATTGGAAAAGACACGGTCATCACTCATGAGCTGGCTGCGGCGGCAGCAGGCAAC
     GlnArgIleGlyLysAspThrValIleThrHisGluLeuAlaAlaAlaAlaAlaGlyAsn  176

 601 CTGGTGGGGCCTCGAGACTTCGTGAGCGTGCGCTGTACCAAGCGCAGAGGTTCCACCTGT
     LeuValGlyProArgAspPheValSerValArgCysThrLysArgArgGlySerThrCys  196

 661 GTGCTGGCAGGCATGGCCACACATTTTGGGGAGATGCCGGAGCAGAGTGGTGTCATCAGA
     ValLeuAlaGlyMetAlaThrHisPheGlyGluMetProGluGlnSerGlyValIleArg  216
                                    45
 721 GCTGAACACGGCCCCACCTGCATGGTGCTTCATCCACTGGCTGGAAGTCCCTCCAAGACT
     AlaGluHisGlyProThrCysMetValLeuHisProLeuAlaGlySerProSerLysThr  236
                                23
 781 AAACTCACTTGGCTGCTCAGTATTGACCTGAAGGGGTGGCTGCCGAAGACAATCATCAAC
     LysLeuThrTrpLeuLeuSerIleAspLeuLysGlyTrpLeuProLysThrIleIleAsn  256

 841 CAGGTCCTATCGCAGACCCAGATAGAGTTCGCCAACCACCTGCGCAAGCGCCTGGAAGCC
     GlnValLeuSerGlnThrGlnIleGluPheAlaAsnHisLeuArgLysArgLeuGluAla  276

 901 AGCCCTGCCTCTGAGGCCCAGTGTTAAggactgtccaccacattgacctgcaaatcattg
     SerProAlaSerGluAlaGlnCysEnd                                   284

 961 gaagctctcacaggaagcctgcaagtctgtccatcttcagctaacagcatcgggaggggt
1021 ggtagtcaggagacactaggactgactggtaaaatcaggatcagcaaaatagaaatgagg
1081 cttagaataaaagttctctagtgtctcccactgcatagctgtgaaggctaagggataagt
1141 agctatgaaacctttcatctaggcttgtatatgctgacctaaaagacaccagcagctacg
1201 aacaggggatgctaaggatcgggaactgttgtcttaccagctccaaatgtcactacctga
1261 aggcagtgtgcacacaaagcaaggtcttgcctaggaaactctgtaaaagttctcctctgt
1321 aaaaggccagaacttgaatgaaactacctacaaagggcctttccagagtattccaacttt
1381 tctctgaggagaaatgaaaccatcattgtgccgacttccctactaatcccatgacAATAA
1441 AgaacatacatAAAAAAAAAAAAAAA
```

FIG. 3

Human steroidogenic acute regulatory protein (StAR) mRNA,

Length = 1605

Identities = 104/134 (77% identity), mouse segment 73-206 to human segment 127-260;

```
Mouse:    73 ATGTTCCTCGCTACGTTCAAGCTGTGTGCTGGAAGCTCCTATAGACATATGCGGAATATG 132
             ||| | || || || |||||||||||| ||||| |||||||| ||||| ||||| || |||
Human:   127 ATGCTGCTAGCGACATTCAAGCTGTGCGCTGGGAGCTCCTACAGACACATGCGCAACATG 186

Mouse:   133 AAAGGATTAAGGCACCAAGCTGTGCTGGCCATTGGCCAAGAGCTCAACTGGAGAGCACTG 192
             || ||  | ||||| || |||||| ||||||| |||| ||||| ||| |||| || |||
Human:   187 AAGGGGCTGAGGCAACAGGCTGTGATGGCCATCAGCCAGGAGCTGAACCGGAGGGCCCTG 246

Mouse:   193 GGGGATTCCAGTCC 206
             ||||   |||  ||
Human:   247 GGGGGCCCCACCCC 260
```

Identities = 612/722 (84% identity); mouse segment 210-931 to human segment 267-988;

```
Mouse:   210 GTGGATGGGTCAAGTTCGACGTCGGAGCTCTCTGCTTGGTTCTCAACTGGAAGCAACACT 269
             ||||||    || ||||| || |||||||||| || |||||||  |||||||  || ||
Human:   267 GTGGATTAACCAGGTTCGGCGGCGGAGCTCTCTACTCGGTTCTCGGCTGGAAGAGACTCT 326

Mouse:   270 CTATAGTGACCAGGAGCTGTCCTACATCCAGCAGGGAGAGGTGGCTATGCAGAAGGCCTT 329
             ||| |||||||||||||| ||||  |||||||||| |||| ||| ||||||||||||||
Human:   327 CTACAGTGACCAGGAGCTGGCCTATCTCCAGCAGGGGGAGGAGGCCATGCAGAAGGCCTT 386

Mouse:   330 GGGCATACTCAACAACCAGGAAGGCTGGAAGAAGGAAAGCCAGCAGGAGAACGGGGACGA 389
             |||||| || | |||||| || |||||||||||||| || |||||||| || |||||| |
Human:   387 GGGCATCCTTAGCAACCAAGAGGGCTGGAAGAAGGAGAGTCAGCAGGACAATGGGGACAA 446

Mouse:   390 AGTGCTAAGTAAGATGGTGCCAGATGTGGGCAAGGTGTTTCGCTTGGAGGTGGTGGTAGA 449
             |||| | |||||  |||| |||||||||||||||||| ||  ||||||| ||||| ||
Human:   447 AGTGATGAGTAAAGTGGTCCCAGATGTGGGCAAGGTGTTCCGGCTGGAGGTCGTGGTGGA 506

Mouse:   450 CCAGCCCATGGACAGACTCTATGAAGAACTTGTGGACCGCATGGAGGCCATGGGAGAGTG 509
             |||||||||||| || |||||||||| || ||||| |||||||| || ||||| |||||
Human:   507 CCAGCCCATGGAGAGGCTCTATGAAGAGCTCGTGGAGCGCATGGAAGCAATGGGGGAGTG 566

Mouse:   510 GAACCCAAATGTCAAGGAGATCAAGGTCCTGCAGAGGATTGGAAAAGACACGGTCATCAC 569
             |||||| |||||||||||||||||||||||||| ||| |||||||| ||  |||| ||
Human:   567 GAACCCCAATGTCAAGGAGATCAAGGTCCTGCAGAAGATCGGAAAAGATACATTCATTAC 626
```

FIG. 3, cont.

```
Mouse:    570 TCATGAGCTGGCTGCGGCGGCAGCAGGCAACCTGGTGGGGCCTCGAGACTTCGTGAGCGT 629
              ||| |||||||||||  | |||||||| |||||||||||||| || ||||| ||||||||
Human:    627 TCACGAGCTGGCTGCCGAGGCAGCAGGAAACCTGGTGGGGCCCCGTGACTTTGTGAGCGT 686

Mouse:    630 GCGCTGTACCAAGCGCAGAGGTTCCACCTGTGTGCTGGCAGGCATGGCCACACATTTTGG 689
              ||||||| |||||||| |||| |||||||||||||||| ||||||| |||| | || ||
Human:    687 GCGCTGTGCCAAGCGCCGAGGCTCCACCTGTGTGCTGGCTGGCATGGACACAGACTTCGG 746

Mouse:    690 GGAGATGCCGGAGCAGAGTGGTGTCATCAGAGCTGAACACGGCCCCACCTGCATGGTGCT 749
              | | ||||| |||||||  |||||||||||| || || ||||| ||||| ||||||||||
Human:    747 GAACATGCCTGAGCAGAAGGGTGTCATCAGGGCGGAGCACGGTCCCACTTGCATGGTGCT 806

Mouse:    750 TCATCCACTGGCTGGAAGTCCCTCCAAGACTAAACTCACTTGGCTGCTCAGTATTGACCT 809
              ||| ||  |||||||||||||||| ||||| ||||| || ||||| ||||| || |||||
Human:    807 TCACCCGTTGGCTGGAAGTCCCTCTAAGACCAAACTTACGTGGCTACTCAGCATCGACCT 866

Mouse:    810 GAAGGGGTGGCTGCCGAAGACAATCATCAACCAGGTCCTATCGCAGACCCAGATAGAGTT 869
              |||||||||||||| ||||  |||||||||||||||| || ||||||||| | || ||
Human:    867 CAAGGGGTGGCTGCCCAAGAGCATCATCAACCAGGTCCTGTCCCAGACCCAGGTGGATTT 926

Mouse:    870 CGCCAACCACCTGCGCAAGCGCCTGGAAGCCAGCCCTGCCTCTGAGGCCCAGTGTTAAGG 929
              |||||||||||||||||||||||||  ||  |||||||||||| |||  ||||| | |
Human:    927 TGCCAACCACCTGCGCAAGCGCCTGGAGTCCCACCCTGCCTCTGAAGCCAGGTGTTGAAG 986

Mouse:    930 AC 931
              ||
Human:    987 AC 988
```

Identities = 18/19 (94% identity), mouse segment 970-988 to human segment 1051-1069

```
Mouse:    970 ACAGGAAGCCTGCAAGTCT 988
              || ||||||||||||||||
Human:   1051 ACTGGAAGCCTGCAAGTCT 1069
```

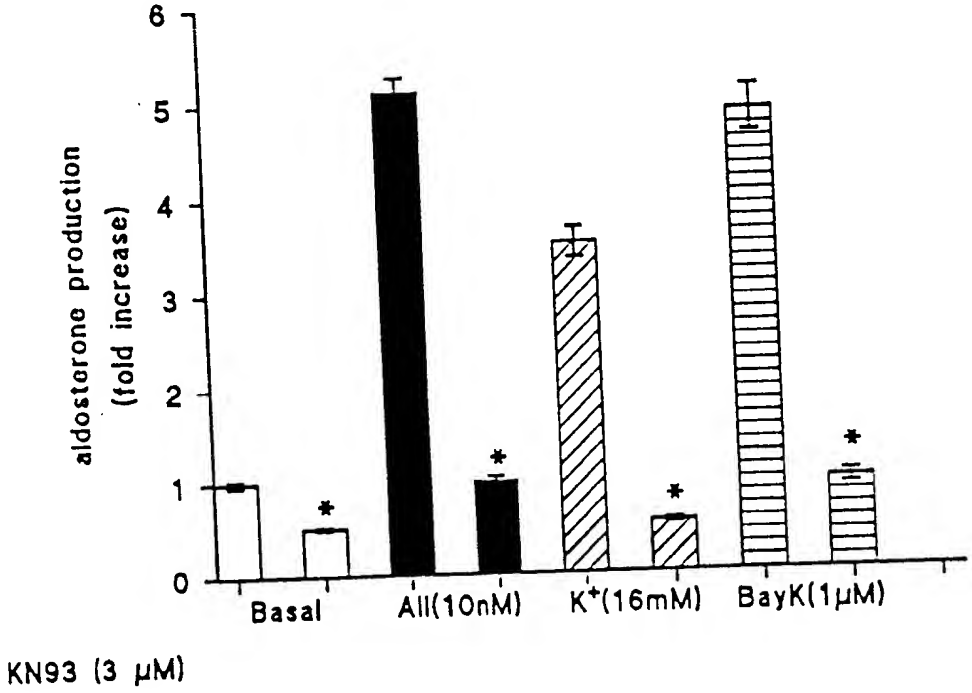
aldosterone production
(fold increase)
6
5
4
3
2
1
0
*
*
*
*
Basal
AII(10nM)
K+(16mM)
BayK(1μM)
KN93 (3 μM)

FIG. 4

```
                                                                C1          C2
   Bovine    1 MLLATFKLCA GSSYRHvRsM KGLqQQAVLA IGQELNRRAL GGPaPaaWIN  50
    Human      MLLATFKLCA GSSYRHMRNM KGLRQQAVMA IsQELNRRAL GGPtPstWIN
    Mouse      MFLATFKLCA GSSYRHMRNM KGLRhQAVLA IGQELNWRAL GdssPg.Wmg
    Ovine      .......... .......... .......... .......... ..........
Consensus      MLLATFKLCA GSSYRHMRNM KGLRQQAVLA IGQELNRRAL GGP-P--WIN

                     A           CK
   Bovine   51 QVRRRgSLLG SQLEDpLYSD QELAhIQQGE EAMQrALGIL kdQEGWKKES 100
    Human      QVRRRSSLLG SrLEETLYSD QELAYlQQGE EAMQKALGIL sNQEGWKKES
    Mouse      QVRRRSSLLG SQLEaTLYSD QELsYIQQGE vAMQKALGIL nNQEGWKKES
    Ovine      .......... .......... .......... .......... ......KKEn
Consensus      QVRRRSSLLG SQLE-TLYSD QELAYIQQGE EAMQKALGIL -NQEGWKKES


   Bovine  101 rQaNGDEVLS KVIPDVGKVF RLEVVVDQPM ERLYEELVER MEAMGEWNPN 150
    Human      qQdNGDkVMS KVVPDVGKVF RLEVVVDQPM ERLYEELVER MEAMGEWNPN
    Mouse      qQeNGDEVLS KmVPDVGKVF RLEVVVDQPM DRLYEELVDR MEAMGEWNPN
    Ovine      rQaNGDEVLS KVIPDVGKVF RLEVVVDQPM ERLYEELVER MEAMGEWNPs
Consensus      -Q-NGDEVLS KV-PDVGKVF RLEVVVDQPM ERLYEELVER MEAMGEWNPN

                                                                    A
   Bovine  151 VKEIKVLQKI GKDTVITHEL AAEvAGNLVG PRDFVSVRCT KRRGSmCVLA 200
    Human      VKEIKVLQKI GKDTfITHEL AAEAAGNLVG PRDFVSVRCa KRRGStCVLA
    Mouse      VKEIKVLQrI GKDTVITHEL AAaAAGNLVG PRDFVSVRCT KRRGStCVLA
    Ovine      VKEIKVLQKI GKDTIITHEL AAEAAGNLVG PRDFVrVRCT KRRGSmCVLA
Consensus      VKEIKVLQKI GKDTVITHEL AAEAAGNLVG PRDFVSVRCT KRRGS-CVLA

                                                        CD    C
   Bovine  201 GMATLYeEMP qQKGVIRAEH GPTCMVLrPL AGSPSrTKLT WLLSIDLKGW 250
    Human      GMdTdFgnMP eQKGVIRAEH GPTCMVLHPL AGSPSKTKLT WLLSIDLKGW
    Mouse      GMAThFgEMP eQsGVIRAEH GPTCMVLHPL AGSPSKTKLT WLLSIDLKGW
    Ovine      GtATLYeEMP qQKGVIR... .......... .......... ..........
Consensus      GMATL--EMP -QKGVIRAEH GPTCMVLHPL AGSPSKTKLT WLLSIDLKGW


   Bovine  251 LPKTIINQVL SQTQVDFANH LRKRLEScPA lEARC 285
    Human      LPKsIINQVL SQTQVDFANH LRKRLEShPA SEARC
    Mouse      LPKTIINQVL SQTQIEFANH LRKRLEasPA SEAqC
    Ovine      .......... .......... .......... .....
Consensus      LPKTIINQVL SQTQVDFANH LRKRLES-PA SEARC
```

FIG. 5